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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,638	08/28/2003	Daigoro Kanematsu	00862.022523.1	5557

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EXAMINER

NGUYEN, LAM S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,638

Applicant(s)

KANEMATSU ET AL.

Examiner

LAM S NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-4, 6- 7, 9, 11 is/are rejected.
- 7) ☒ Claim(s) 2, 5, 8 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/078,438.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/08/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3-4, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable by Stephany et al. (US 5497174) in view of Inoue et al. (US 5788385).

Stephany et al. disclose an ink jet recording apparatus for using a recording head having a plurality of discharge apertures (FIG. 1, element 14) and a plurality of recording elements (FIG. 1, element 26) corresponding to the discharge apertures and discharging ink from the discharge apertures onto a recording medium by application of a drive signal to the recording elements, the ink jet recording apparatus comprising:

driving means for dividing the plurality of recording elements into a plurality of blocks such that each block includes a predetermined number of recording elements and for sequentially driving each one of the blocks so as to discharge ink within a discharge cycle (column 5, line 19-30); and

adjusting means for adjusting the drive signal applied to the recording elements based on the number of recording elements to be driven within the discharge cycle and the number of recording elements to be substantially simultaneously driven in each of the blocks sequentially driven by said driving means (column 2, line 4-7 and 24-28).

Stephany et al. do not disclose wherein the discharge cycle whose time period varies

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depending on a resolution of an image to be recorded.

Inoue et al. disclose a recording apparatus for recording an image on a recording medium by scanning a recording head. The apparatus comprises recording means for performing recording by changing time period of a discharge cycle (in term of “driving frequency”) of the recording head, and control means for controlling the recording means to change the time period of the discharge cycle according to a resolution of image data to be recorded by the recording head” (column 2, line 67 to column 3, line 8).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing apparatus disclosed by Stephany et al. such that changing the time period of a discharge cycle in according to a resolution of an image as disclosed by Inoue et al. The motivation of doing so is to provide a recording apparatus that can record an image having a resolution different from the resolution of the recording apparatus with high printing quality as taught Inoue et al. (column 2, line 40-44).

Stephany et al. also disclose the following claimed invention:

Referring to claim 3: wherein each one of the recording elements includes an electrothermal transducer that generates heat when the drive signal is applied thereto, the heat causing a bubble to be generated in the ink (column 2, line 24-29: plurality of heater elements).

2. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephany et al. (US 5497174) in view of Inoue et al. (US 5788385) as applied to claims 4 and 9, and further in view of Murata et al. (US 5896146).

Stephany et al., as modified, disclose the claimed invention as discussed above except wherein at least one of the plurality of recording heads is driven at a timing different from that of the other recording heads.

Murata et al. disclose a printing apparatus having a plurality of print heads (FIG. 1, element 90) wherein each recording head is driven at a timing different from that of the other recording heads (FIG. 5E-H) at a high resolution mode.

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing apparatus disclosed by Stephany et al., as modified, such that driving at least one recording head at a timing different from that of the other recording heads as disclosed by Murata et al. The motivation of doing so is to provide a division drive recording apparatus and method which can shorten a drive time of a recording head and can record at high resolution as taught by Murata et al. (column 2, line 15-18).

Allowable Subject Matter

Claims 2, 5, 8, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The most pertinent prior art fails to disclose wherein said adjusting means changes a pulse width of a drive pulse signal applied to the recording elements of the recording head based on values calculated by said first calculating means and said second calculating means.

Therefore, the claimed invention is not disclosed by the prior arts.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN

March 30, 2004



HAI PHAM
PRIMARY EXAMINER